



# UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE  
United States Patent and Trademark Office  
Address: COMMISSIONER FOR PATENTS  
P.O. Box 1450  
Alexandria, Virginia 22313-1450  
www.uspto.gov

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/723,783	11/26/2003	Erik G. Larsson	5853-346-1	9060

30448 7590 01/03/2007  
AKERMAN SENTERFITT  
P.O. BOX 3188  
WEST PALM BEACH, FL 33402-3188

EXAMINER
----------

LEE, JOHN J

ART UNIT	PAPER NUMBER
----------	--------------

2618

SHORTENED STATUTORY PERIOD OF RESPONSE	MAIL DATE	DELIVERY MODE
3 MONTHS	01/03/2007	PAPER

**Please find below and/or attached an Office communication concerning this application or proceeding.**

If NO period for reply is specified above, the maximum statutory period will apply and will expire 6 MONTHS from the mailing date of this communication.

**Office Action Summary**

Application No.

10/723,783

Applicant(s)

LARSSON ET AL.

Examiner

JOHN J. LEE

Art Unit

2618

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

**Status**

- 1) ☒ Responsive to communication(s) filed on 26 November 2003.
- 2a) ☐ This action is FINAL. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

**Disposition of Claims**

- 4) ☒ Claim(s) 1-45 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-3,8-10,15-17,22-25,30-33 and 38-41 is/are rejected.
- 7) ☒ Claim(s) 4-7,11-14,18-21,26-29,34-37 and 42-45 is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

**Application Papers**

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
- Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

**Priority under 35 U.S.C. § 119**

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some \* c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
  2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

**Attachment(s)**

- |  |   |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892)          | 4) <input type="checkbox"/> Interview Summary (PTO-413)           |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | Paper No(s)/Mail Date. _____                                      |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08)          | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| Paper No(s)/Mail Date _____  | 6) <input type="checkbox"/> Other: _____                          |

**DETAILED ACTION**

***Claim Rejections - 35 USC § 103***

1. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

2. **Claims 1-3, 8-10, 15-17, 22-25, 30-33, and 38-41** are rejected under 35 U.S.C. 103(a) as being unpatentable over Kuwabara et al. (US 5,909,439) in view of Elgamal et al (US 6,898,248).

Regarding **claims 1 and 8**, Kuwabara teaches that a method of broadcasting multi-layered information in an antenna broadcasting system (Fig. 3 and column 25, lines 49 – column 26, lines 53). Kuwabara teaches that identifying at least a first and second layer of information to be transmitted (Fig. 3 and column 25, lines 49 – column 26, lines 53, where teaches a layer identifier of information center identifies a first and second layer and the information center transmits the first and second layer of information). Kuwabara teaches that encoding the first layer of information for transmission (Fig. 3, 6 and column 28, lines 5 – column 29, lines 19, where teaches the encoder for encoding (1309 in Fig. 6) transmitting the first layer data). Kuwabara teaches that encoding the second layer of information for transmission (Fig. 3, 6 and column 28, lines 5 – column 29, lines 19, where teaches the encoder for encoding (1309 in Fig. 6) transmitting the second layer data). Kuwabara teaches that transmitting the first and second layers of the multi-layered information with the antenna broadcasting system (Fig. 3, 6 and column 25,

lines 49 – column 26, lines 53, where teaches layer identifier of information center transmits first and second layer of information with antenna broadcast system). Kuwabara does not specifically teach the limitation “transmitting layers of information with a multi-antenna broadcasting system”. However, Elgamal teaches the limitation “transmitting layers of information with a multi-antenna broadcasting system” (column 12, lines 58 – column 13, lines 67 and Fig. 1, where teaches the multi-layer architecture is the use of space-time component codes, and the space time codes have the diversity provided by the multiple transmit antennas, means transmitting broadcasting layer of information with multi-antenna system). It has been obvious to one having ordinary skill in the art at the time the invention was made to modify the Kuwabara system as taught by Elgamal, provide the motivation to achieve great power efficiency, bandwidth efficiency, and receiver complexity in wireless communication system.

Regarding **claims 2 and 9**, Kuwabara teaches that the first layer of information is encoded using a first unitary code matrix and the second layer of information is encoded using a second and different unitary code matrix (column 28, lines 5 – column 29, lines 19, Fig. 3, 6, and column 26, lines 7 – column 27, lines 24, where teaches first layer of information data is encoded using a first coded and second layer information data is encoded using a second coded for broadcasting). Kuwabara does not specifically teach the limitation “layer of information is encoded using a code matrix”. However, Elgamal teaches the limitation “layer of information is encoded using a code matrix” (column 17, lines 10 – column 18, lines 62 and Fig. 1, where teaches the multi-layer architecture is the use of space-time component codes, and the space time codes have the diversity provided

by the multiple transmit antennas, and the layer of information is encoded code matrices (different) for transmission). It has been obvious to one having ordinary skill in the art at the time the invention was made to modify the Kuwabara system as taught by Elgamal, provide the motivation to achieve maximum transmission diversity in wireless communication system.

Regarding **claims 3 and 10**, Kuwabara and Elgamal teach all the limitation as discussed in claims 1 and 2. Furthermore, Kuwabara further teaches that step of encoding the first layer of information comprising differentially encoding a product of the first layer of information and the first unitary code matrix (column 28, lines 5 – column 29, lines 19, Fig. 3, 6, and column 26, lines 7 – column 27, lines 24, where teaches first layer of information data is encoded using a first coded and second layer information data is encoded using a second coded for broadcasting).

Regarding **claim 15**, Kuwabara and Elgamal teach all the limitation as discussed in claims 1 and 2.

Regarding **claim 16**, Kuwabara and Elgamal teach all the limitation as discussed in claims 1 and 2.

Regarding **claim 17**, Kuwabara and Elgamal teach all the limitation as discussed in claims 1 and 3.

Regarding **claims 22, 30, and 38**, Kuwabara and Elgamal teach all the limitation as discussed in claims 1 and 2. Furthermore, Kuwabara further teaches that receiving a wireless transmission comprised of multi-layered information (Fig. 3, 4 and column 25, lines 49 – column 26, lines 53, where teaches a layer identifier of information center

identifies a first and second layer and the receiving terminal receives the first and second layer of information over the air), each layer of the information is encoded (Fig. 3, 6 and column 28, lines 5 – column 29, lines 19, where teaches the encoder for encoding (1309 in Fig. 6) transmitting the each layer of information data to be transmitted to receiving terminal). Kuwabara teaches that decoding at least a first layer of information from the wireless transmission (Fig. 4 and column 27, lines 34 – column 28, lines 3, where teaches the decoders decode the layers of information data from wirelessly transmission the data), and presenting the decoded information (Fig. 4 and column 27, lines 34 – column 28, lines 3, where teaches representing the decoded information data (video, audio) to user for service).

Regarding **claims 23, 31 and 39**, Kuwabara teaches that decoding a second layer of information from the wireless transmission such that the decoded first layer of information and the decoded second layer of information are presented (Fig. 4 and column 27, lines 34 – column 28, lines 3, where teaches the decoders decode the layers of information data from wirelessly transmission the data).

Regarding **claims 24, 32, and 40**, Kuwabara and Elgamal teach all the limitation as discussed in claims 22 and 23. Furthermore, Kuwabara further teaches that the first layer of information is decoded using a first unitary code matrix and the second layer of information is decoded using a second and different unitary code matrix (Fig. 4 and column 27, lines 34 – column 28, lines 3, where teaches receiving first layer of information data is decoded using a received first coded and second layer information data is decoded using a second received coded).

Regarding **claims 25, 33, and 41**, Kuwabara and Elgamal teach all the limitation as discussed in claims 22 and 23. Furthermore, Kuwabara further teaches that step of decoding the first layer of information comprising differentially decoding a product of the first layer of information and the first unitary code matrix (Fig. 4 and column 27, lines 34 – column 28, lines 3, where teaches receiving layer of information data is decoded using a received a coded differentially).

***Allowable Subject Matter***

3. Claims 4-7, 11-14, 18-21, 26-29, 34-37, and 42-45 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

The prior art record fails to disclose the limitation “ $U_b$  represents the unitary code matrix and is selected from the set of equation formula such that the product of the first layer of information and the first unitary code matrix is defined by  $U_b \epsilon X_b$ . and  $U_a$  represents the unitary code matrix and is selected from the set of equation formula such that the product of the second layer of information and the second unitary code matrix is defined by  $U_a \epsilon X_a$ .” As specified the limitation of the claims.

***Conclusion***

The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.

Wechselberger et al. (US 4,531,020) discloses Multi-Layer Encryption System for the Broadcast of Encrypted Information.

Leung (UD 2003/0172114) discloses Data Packet Transport in a Wireless Communication System Using an Internet Protocol.

Information regarding...Patent Application Information Retrieval (PAIR) system... at 866-217-9197 (toll-free)."

Any response to this action should be mailed to:

Commissioner of Patents and Trademarks  
Washington, D.C. 20231  
Or P.O. Box 1450  
Alexandria VA 22313

or faxed (571) 273-8300, (for formal communications intended for entry)

Or: (703) 308-6606 (for informal or draft communications, please label "PROPOSED" or "DRAFT").

Hand-delivered responses should be brought to USPTO Headquarters, Alexandria, VA.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to **John J. Lee** whose telephone number is **(571) 272-7880**. He can normally be reached Monday-Thursday and alternate Fridays from 8:30am-5:00 pm. If attempts to reach the examiner are unsuccessful, the examiner's supervisor,



Art Unit: 2618

**Edward Urban**, can be reached on (571) 272-7899. Any inquiry of a general nature or relating to the status of this application should be directed to the Group receptionist whose telephone number is (703) 305-4700.

J.L  
December 23, 2006

John J Lee

*Nguyent*  
12-26-2006

**NGUYENT.VO  
PRIMARY EXAMINER**